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## NOTICE OF ALLOWANCE AND FEE(S) DUE

7055 7590 05/13/2009  
GREENBLUM & BERNSTEIN, P.L.C.  
1950 ROLAND CLARKE PLACE  
RESTON, VA 20191

EXAMINER	
MILLER, BRANDON J	
ART UNIT	PAPER NUMBER

2617  
DATE MAILED: 05/13/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,937	12/14/2004	Yutaka Murakami	P26356	8654

TITLE OF INVENTION: COMMUNICATION METHOD, TRANSMITTING DEVICE USING THE SAME, AND RECEIVING DEVICE USING THE SAME

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	08/13/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE** OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

## HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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**Complete and send this form, together with applicable fee(s), to:** **Mail** **Mail Stop ISSUE FEE**  
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**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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**RESTON, VA 20191**

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,937	12/14/2004	Yutaka Murakami	P26356	8654

**TITLE OF INVENTION:** COMMUNICATION METHOD, TRANSMITTING DEVICE USING THE SAME, AND RECEIVING DEVICE USING THE SAME

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	08/13/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
MILLER, BRANDON J	2617	370-343000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_  
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_  
 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

**PLEASE NOTE:** Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee  
☐ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

**NOTE:** The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_  
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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO:** Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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			ART UNIT	PAPER NUMBER

2617

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## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 314 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 314 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

# Notice of Allowability

## Application No.

10/516,937

## Examiner

BRANDON J. MILLER

## Applicant(s)

MURAKAMI ET AL.

## Art Unit

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### - The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/20/2009.
2. ☒ The allowed claim(s) is/are 16,18,20,21,23,24,26 and 28-33.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

### THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

/George Eng/  
Supervisory Patent Examiner, Art Unit 2617

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

I. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with William Pieprz on May 4, 2009.

The application has been amended as follows: Claim 29 should be amended to remove the bracketed word "a" from lines 12 and 13 as follows:

29. (Previously Presented) A transmitting apparatus comprising:

an orthogonal frequency division multiplexing signal generation section that generates an orthogonal frequency division multiplexing signal; a frame configuration determining section that configures a transmission frame including a first carrier group where a modulated signal for a first terminal is arranged and a second carrier group where a modulated signal for a second terminal is arranged; and a plurality of antennas, wherein the frame configuration determination section selects, for the first carrier group, one of a first frame configuration where one modulated signal is transmitted from at least one antenna, and second frame configuration where a plurality of modulated signals are transmitted from the plurality of antennas; and selects, for the second carrier group, one of [a] the first frame configuration where one modulated signal is transmitted from at least one antenna, and [a] the second frame configuration, where a plurality of modulated signals are transmitted from the plurality of antennas.

*Allowable Subject Matter*

II. The following is an examiner's statement of reasons for allowance:

Claim 16 recites a transmission method for transmitting an orthogonal frequency division multiplexing signal with steps as defined in the specification (pages 11-133) including composing, a plurality of carrier groups each including of one or more subcarriers; assigning, transmission data for a plurality of transmission destination terminals, to the plurality of carrier groups; selecting, for each of the carrier groups one of a first frame configuration where the transmission data is transmitted using one modulated signal, and a second frame configuration where the transmission data is transmitted using a plurality of modulated signals; and transmitting the assigned transmission data, the transmitting comprising transmitting, at a first unit of time, a modulated signal for a first terminal on a first carrier group and a modulated signal for a second terminal on a second carrier group, and transmitting, at a second unit of time, a modulated signal for a third terminal on the first carrier group and a modulated signal for a fourth terminal on the second carrier group.

The prior art teaches a transmission method for transmitting an orthogonal frequency division multiplexing signal, including composing a plurality of carrier groups including one or more subcarriers; and transmitting data signals modulated under the subcarriers to a terminal. However, applicant's independent claim 16 comprises a particular combination of steps, as recited above, that allow for assigning transmission data for a plurality of terminals to a plurality of carrier groups; selecting for each of the carrier groups one of a first frame configuration where the transmission data is

transmitted using one modulated signal, and second frame configuration where the transmission data is transmitted using a plurality of modulated signals; and transmitting at specific units of time, modulated signals for the plurality of terminals, on specific carrier groups. This is neither taught nor suggested by the prior art.

Claims 18, 20, and 32 are allowable based on their dependence on independent claim 16.

Claim 21 recites a transmission method for transmitting an orthogonal frequency division multiplexing signal with steps as defined in the specification (pages 11-133) including configuring a transmission frame including a first carrier group where a modulated signal for a first terminal is arranged and a second carrier group where a modulated signal for a second terminal is arranged; selecting, for the first carrier group, one of a first frame configuration where one modulated signal is transmitted from at least one antenna, and second frame configuration where a plurality of modulated signals are transmitted from a plurality of antennas; and selecting, for the second carrier group, one of the first frame configuration where one modulated signal is transmitted from at least one antenna, and the second frame configuration, where a plurality of modulated signals are transmitted from the plurality of antennas, each of the plurality of modulated signals being transmitted from a different antenna.

The prior art teaches a transmission method for transmitting an orthogonal frequency division multiplexing signal, including composing a plurality of carrier groups including one or more subcarriers; and transmitting data signals modulated under the subcarriers to a terminal. However, applicant's independent claim 21 comprises a particular combination of steps, as recited above, that allow for configuring a

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transmission frame including a first and second carrier group where modulated signals for specific terminals are arranged; and selecting for each of the first and second carrier groups one of a first frame configuration where the transmission data is transmitted using one modulated signal, and second frame configuration where the transmission data is transmitted using a plurality of modulated signals, each of the plurality of modulated signals being transmitted from a different antenna. This is neither taught nor suggested by the prior art.

Claims 23 and 33 are allowable based on their dependence on independent claim 21.

Claim 24 recites a transmitting apparatus with a structure as defined in the specification (pages 11-133) including an orthogonal frequency division multiplexing signal generation section that generates an orthogonal frequency division multiplexing signal; and a frame configuration determination section that determines a modulated signal to be assigned to subcarriers of the orthogonal frequency division multiplexing signal, wherein the frame configuration determination section composes, a plurality of carrier groups each including one or more subcarriers, assigns, transmission data for a plurality of transmission destination terminals, to the plurality of composed carrier groups, and selects for each of the carrier groups one of a first frame configuration where one modulated signal is transmitted, and a second frame configuration where a plurality of modulated signals are transmitted; and wherein, at a first unit of time, the frame configuration determination section assigns a modulated signal for a first terminal to a first carrier group and assigns a modulated signal for a second terminal to a second



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carrier group, and at a second unit of time, assigns a modulated signal for a third terminal to the first carrier group and assigns a modulated signal for a fourth terminal to the second carrier group.

The prior art teaches a transmission apparatus for transmitting an orthogonal frequency division multiplexing signal, including composing a plurality of carrier groups including one or more subcarriers; and transmitting data signals modulated under the subcarriers to a terminal. However, applicant's independent claim 24 comprises a particular combination of elements, as recited above, that allow for determining modulated data signals to be assigned to a plurality of subcarriers; assigning transmission data for a plurality of destination terminals to a plurality of carrier groups, selecting for each of the carrier groups one of a first frame configuration where the transmission data is transmitted using one modulated signal, and second frame configuration where the transmission data is transmitted using a plurality of modulated signals; and transmitting at specific units of time, modulated signals for the plurality of terminals, on specific carrier groups. This is neither taught nor suggested by the prior art.

Claims 26 and 28 are allowable based on their dependence on independent claim 24.

Claim 29 recites a transmitting apparatus with a structure as defined in the specification (pages 11-133) including an orthogonal frequency division multiplexing signal generation section that generates an orthogonal frequency division multiplexing signal; a frame configuration determining section that configures a transmission frame including a first carrier group where a modulated signal for a first terminal is arranged and a second carrier group where a modulated signal for a second terminal is arranged;

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and a plurality of antennas, wherein the frame configuration determination section selects, for the first carrier group, one of a first frame configuration where one modulated signal is transmitted from at least one antenna, and second frame configuration where a plurality of modulated signals are transmitted from the plurality of antennas; and selects, for the second carrier group, one of the first frame configuration where one modulated signal is transmitted from at least one antenna, and the second frame configuration, where a plurality of modulated signals are transmitted from the plurality of antennas.

The prior art teaches a transmitting apparatus for transmitting an orthogonal frequency division multiplexing signal, including composing a plurality of carrier groups including one or more subcarriers; and transmitting data signals modulated under the subcarriers to a terminal. However, applicant's independent claim 29 comprises a particular combination of elements, as recited above, that allow for configuring a transmission frame including a first and second carrier group where modulated signals for specific terminals are arranged; and selecting for each of the first and second carrier groups one of a first frame configuration where the transmission data is transmitted using one modulated signal, and second frame configuration where the transmission data is transmitted using a plurality of modulated signals, each of the plurality of modulated signals being transmitted from a different antenna. This is neither taught nor suggested by the prior art.

Claims 30-31 are allowable based on their dependence on independent claim 29.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kogawa et al. Patent No.: US 7,212,793 B2 discloses a radio reception apparatus and radio reception method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRANDON J. MILLER whose telephone number is (571)272-7869. The examiner can normally be reached on Mon.-Fri. 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/  
Supervisory Patent Examiner, Art Unit 2617

/Brandon J Miller/  
Examiner, Art Unit 2617

May 4, 2009